

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction/modification of six (6) existing traffic control signals on MD 528 in Ocean City, Worcester County. MD 528 is assumed to run in a north-south direction.

The existing span wire design traffic control signals at the following four (4) intersections shall be removed and replaced with new signals using a mast arm design:

- MD 528 and 15th Street
- MD 528 and 17th Street
- MD 528 and 21st Street
- MD 528 and 26th Street

The existing mast arm design traffic control signals at the following two (2) intersections shall be modified:

- MD 528 and 12th Street
- MD 518 and 23rd Street

The existing sampling station at MD 528 and 9th Street shall be replaced.

The existing master cabinet/controller at MD 528 and 15th Street shall be removed.

The existing interconnect from 12th St. to 26th St. shall be replaced.

I. INTERSECTION OPERATION

1.) MD 528 AND 9TH STREET (SAMPLING STATION)

- a.) One (1) four-channel, rack mount loop detector amplifiers and detector rack power supply shall be installed into the existing pole-mounted cabinet.

2.) MD 528 AND 12TH STREET

- a.) The intersection is to operate in a NEMA six-phase, semi-actuated mode, with the MD 528 approaches running concurrently. An Exclusive/Permissive left turn phase shall be added for southbound MD 528. An Exclusive/Permissive U-turn phase exists for northbound MD 528. The pedestrian phases with pushbutton actuation across both legs of MD 528 shall remain. The 12th Street approaches shall continue to operate concurrently.

- b.) Two (2) four-channel, rack mount loop detector amplifiers and detector rack power supply shall be installed into the existing base-mounted NEMA size "5" cabinet.

3.) MD 528 AND 15TH STREET

- a.) The intersection is to operate in a NEMA six-phase, semi-actuated mode with the MD 528 approaches running concurrently. An Exclusive/Permissive left turn phase shall be added for northbound MD 528. An Exclusive/Permissive U-turn phase shall be added for southbound MD 528. A pedestrian phase with pushbutton actuation across the north leg of MD 528 shall be added. The pedestrian phase crossing the south leg of MD 528 is existing. The 15th Street approaches shall be a split-phase operation. The existing fire house pre-emption phase and timed overlap for northbound MD 528 shall remain.

- b.) A full-traffic-actuated, eight-phase controller with two (2) four-channel, rack mount loop detector amplifiers and detector rack power supply, all necessary equipment and associated harnesses and a master ASC 10000 w/telemetry housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

4.) MD 528 AND 17TH STREET

- a.) The intersection is to operate in a NEMA six-phase, semi-actuated mode with the MD 528 approaches running concurrently. Exclusive/Permissive left turn phases shall be added for both north and southbound MD 528. A pedestrian phase with pushbutton actuation across the north leg of MD 528 shall be added. The pedestrian phase crossing the south leg of MD 528 is existing. The existing pedestrian phases across both approaches of 17th Street shall be on recall. The 17th Street approaches shall continue to operate concurrently.

- b.) A full-traffic-actuated, eight-phase controller with two (2) four-channel, rack mount loop detector amplifiers and detector rack power supply, all necessary equipment and associated harnesses housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

5.) MD 528 AND 21ST STREET

- a.) The intersection is to operate in a NEMA five-phase, semi-actuated mode with the MD 528 approaches running concurrently. Exclusive/Permissive left turn phases shall be provided for both north and southbound MD 528. Pedestrian phases with pushbutton actuation shall be provided across both legs of MD 528. The pedestrian phase across 21st Street shall be on recall. The 21st Street approach shall operate alone.

- b.) A full-traffic-actuated, eight-phase controller with two (2) four-channel, rack mount loop detector amplifier and detector rack power supply, all necessary equipment and associated harnesses housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

6.) MD 528 AND 23RD STREET

- a.) The intersection is to continue to operate in a NEMA five-phase, semi-actuated mode with the MD 528 approaches running concurrently. Exclusive/Permissive left turn phases shall remain for both north and southbound MD 528. The pedestrian phases with pushbutton actuation across both legs of MD 528 shall remain. The 23rd Street approach shall operate alone.

- b.) One (1) four-channel, rack mount loop detector amplifier shall be installed into the existing NEMA size "5" base-mounted cabinet.

7.) MD 528 AND 26TH STREET

- a.) The intersection is to operate in a NEMA six-phase, semi-actuated mode with the MD 528 approaches running concurrently. Exclusive/Permissive left turn phases shall be added for both north and southbound MD 528. Pedestrian phases with pushbutton actuation shall be provided across both legs of MD 528. The pedestrian phases across both approaches of 26th Street shall be on recall. The 26th Street approaches shall continue to operate concurrently.

- b.) A full-traffic-actuated, eight-phase controller with two (2) four-channel, rack mount loop detector amplifiers and detector rack power supply, all necessary equipment and associated harnesses housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

SPECIAL NOTE

All field wiring to the existing controller cabinets shall be terminated to the appropriate controller cabinet connectors by the Contractor and labeled. All other controller cabinet wiring will be performed by the S.H.A. Signal Shop. Installation of the four-channel, rack mount loop detector amplifiers into the existing cabinets shall also be performed by the S.H.A. Signal Shop. Contact Mr. Ed Rodenhizer at (410) 787-7650 seventy-two (72) hours in advance of intended work.

EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY S.H.A. AND INSTALLED BY THE SIGNAL CONTRACTOR.

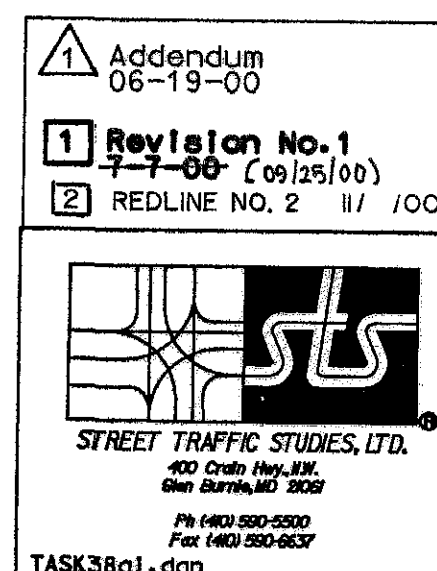
CATNO.	QUANTITY	SPEC.#	DESCRIPTION
900000	1 EA.	816	A local Eight-phase, full-actuated, solid state digital controller and Master ASC 10,000 with telemetry, two-4-channel rack mount amplifiers, rack power and all necessary equipment and harnesses housed in a NEMA size "6" base-mounted cabinet.
900000	6 EA.	816	Eight-phase, full-actuated, solid state digital controller with two-4-channel rack mount amplifiers, rack power supply and all necessary equipment and harnesses housed in a NEMA size "6" base-mounted cabinet.
900000	558 EA.	813	Sheet aluminum signs to consist of: 2 EA. D3-2 "DOLPHIN ST" DUAL FACED SIGN (VARIB. X 16") MAST ARM MOUNTED. 2 EA. D3-2 "15th ST" dual faced sign, (varib. x 16") mast arm mounted. 2 EA. D3-2 "17th ST" dual faced sign, (varib. x 16") mast arm mounted. 2 EA. D3-2 "21th ST" dual faced sign, (varib. x 16") mast arm mounted. 8 EA. D3-2 "Coastal HWY " dual faced sign (varib. x 16") mast arm mounted. 3 EA. D3-2 "Coastal HWY " sign, (varib. X 16) mast arm mounted. 2 EA. D3-2 "26th ST" dual faced sign, (varib. x 16") mast arm mounted. 9 EA. R10-12 "LEFT TURN YIELD ON GREEN BALL" sign, (36" x 42") mast arm mounted. 1 EA. R10-12 (1) "U TURN YIELD ON GREEN BALL" sign, (36" x 42") mast arm mounted. 1 EA. R3-6L "THRU AND LEFT TURN" sign (30 X 36) mast arm mounted. 1 EA. R3-6L "LEFT TURN ONLY" sign, (30" x 36") mast arm mounted. 2 EA. R5-1 "DO NOT ENTER" sign, (30" x 30") pole mounted. 1 EA. R3-12 "RESTRICTED LANE, ENDS" sign, (30" x 42") mast arm mounted. 5 EA. R3-14mod "RIGHT LANE, BUSES AND, RIGHT, TURNS, ONLY" sign (30" x 42") mast arm mounted. 1 EA. R3-10 "RESTRICTED, LANE, AHEAD" sign, (30" x 42") mast arm mounted. 2 EA. R9-1mod "YIELD, TO PED" sign, (48" x 48") mast arm mounted. 2 EA. R3-1 "NO RIGHT TURN" (SYMBOL) sign, (30" X 30") mast arm mounted. 1 EA. R3-6R "THRU AND RIGHT TURN" sign, (30" x 36") mast arm mounted. 1 EA. R4-4mod "RIGHT TURNS, WATCH FOR FIRE TRUCK" (symbol) sign, (36" x 48") pole mounted. 2 EA. R3-2 "NO LEFT TURN" (symbol) sign, (30" x 30") mast arm mounted. 1 EA. Relocate existing Fiberoptic Blankout "NO RIGHT TURN" sign (30" x 30" x 9") install mast arm mounting brackets.
900000	1 EA.	800	Relocate existing Fiberoptic Blankout "NO RIGHT TURN" sign (30" x 30" x 9") install mast arm mounting brackets.
900000	4 EA.	863	Four-channel rack mounted loop detector amplifier and rack power supply. (SHA will install two amplifiers into the existing cabinets at 12th and one amplifier into existing cabinets at 9th and 23rd Streets.)
965001	26 EA.	817	Pedestrian pushbutton and R10-3C sign to read "PUSHBUTTON TO CROSS COASTAL HWY."

B. EQUIPMENT TO BE SUPPLIED BY AND INSTALLED BY THE SIGNAL CONTRACTOR.

CATNO.	QUANTITY	SPEC.#	DESCRIPTION
585620	8490 L.F.	SP-555	Furnish and install 12" white heat applied permanent preformed thermoplastic pavement markings.
585624	975 L.F.	SP-555	Furnish and install 24" white heat applied permanent preformed thermoplastic pavement markings.
800000	2 EA.	818	Furnish and install 27' steel pole with a 38' mast arm. (Note: 4- anchor bolts 1 3/4" x 60"). Pole to be cut to 21' height and mast arm cut to 30' length, cleaned, galvanized, and capped.
800000	3 EA.	818	Furnish and install 27' steel pole with a 60' mast arm. (Note: 4 anchor bolts 2" x 90"). Pole to be cut to 21' height, cleaned, galvanized, and capped.
800000	1 EA.	818	Furnish and install 27' steel pole with twin 50'/50' mast arm (Note: 4- anchor bolts 2" x 90"). Pole to be cut to 21' height and one mast arm cut to 45' length, cleaned, galvanized, and capped.
800000	4 EA.	818	Furnish and install 27' steel pole with twin 50'/60' mast arm (Note: 4- anchor bolts 2" x 90"). Pole to be cut to 21' height, cleaned, galvanized, and capped.
800000	1 EA.	818	Furnish and install 27' steel pole with twin 50'/70' mast arm (Note: 4- anchor bolts 2" x 90"). Pole to be cut to 21' height and 70' mast arm to be cut to 66' length, cleaned, galvanized, and capped.
800000	242 EA.	814	Furnish and install 12" Vehicular Signal Head Section Red 62 EA. Yellow 62 EA. Green 62 EA. Yellow arrow 26 EA. Green arrow 30 EA.
800000	49 EA.	814	Furnish and install 8" Vehicular Signal Head Sections. Red 15 EA. Yellow 19 EA. Green 15 EA.
800000	76 EA.	814	Furnish and install 12" Pedestrian Signal Head Sections WK 42 EA. DW 42 EA.

B. EQUIPMENT TO BE SUPPLIED BY AND INSTALLED BY THE SIGNAL CONTRACTOR.

CATNO.	QUANTITY	SPEC.#	DESCRIPTION
800000	4 EA.	805	Furnish and install 2" weatherhead.
800000	1 EA.	804	Relocate existing electrical service to new signal structure.
800000	13 EA.	800	Cut, clean, galvanized and cap pole or mast arm.
800000	6850 L.F.	810	Remove existing interconnect cable.
800000	2 EA.	816	Remove existing cabinet and controller, cut 1' off the front of the cabinet concrete foundation and replace existing cabinet and controller. Rewire with the new cables. (See typical.)
800000	L.S.	402	Removal and disposal of existing equipment.
800000	5 EA.	402	Removal of existing controller and cabinet.
800000	5 EA.	402	Delivery of the existing controller and cabinet to the SHA.
800000	12 EA.	402	Removal of existing signal pole and foundation 12" below grade.
800000	3 EA.	811	Adjust existing handhole to grade.
801004	78 55 C.Y.	801	Furnish and install concrete foundation.
802501	3800 3400 L.F.	410	Furnish and install stranded bare copper ground wire (No. 6 A.W.G.)
805011	55 35 L.F.	804	Furnish and install 1" galvanized electrical conduit for detector sleeve.
805015	105 L.F.	805	Furnish and install 2" schedule 80 PVC electrical conduit- riser.
805155	3070 2830 L.F.	805	Furnish and install 4" schedule 80 PVC electrical conduit- slotted.
805160	170 L.F.	805	Furnish and install 1" liquid tight flexible non-metallic electrical conduit for detector sleeve.
807205	7 5 EA.	850	Furnish and install control and distribution equipment.
807312	5 EA.	807	Remove existing electrical service.
811001	2 EA. 34	811	Furnish and install electrical handhole.
813015	551 485 S.F.	813	Install overhead sheet aluminum signs.
822001	7540 7490 L.F.	850	Furnish and install 12-pair, voice grade interconnect cable (No 19 A.W.G.) self-supporting.
837001	30 25 EA.	804	Furnish and install ground rod, 3/4" dia. x 10' length.
861104	4875 4300 L.F.	850	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.) aluminum shielded.
861105	4950 4550 L.F.	850	Furnish and install 2-conductor electrical cable (No. 14 A.W.G.).
861106	2500 1850 L.F.	850	Furnish and install 3-conductor electrical cable (No. 14 A.W.G.).
861107	4675 4600 L.F.	850	Furnish and install 5-conductor electrical cable (No. 14 A.W.G.).
861108	10750 9900 L.F.	850	Furnish and install 7- conductor electrical cable (No. 14 A.W.G.).
861117	195 470 L.F.	850	Furnish and install 3-wire electrical cable (No. 4 A.W.G.).
862181	14850 43500 L.F.	850	Furnish and install loop wire (No. 14 A.W.G.) encase in 1/4" flexible tubing.
862102	4085 3735 L.F.	815	Furnish and install sawcut.
865201	26 24 EA.	817	Install pedestrian pushbutton and sign.
868003	7 5 EA.	818	Furnish and install 10' breakaway pedestal pole.
868201	3 4 EA.	818	Furnish and install 14' breakaway pedestal pole.
870116	110 L.F.	805	Furnish and install 2" schedule 80 PVC electrical conduit- trench.
870119	705 680 L.F.	805	Furnish and install 3" schedule 80 PVC electrical conduit- trench.
870122	260 230 L.F.	805	Furnish and install 4" schedule 80 PVC electrical conduit- trench.
871202	7 4 EA.	816	Install base-mounted cabinet and controller.
88004	7 S.F.	813	INSTALL GROUND-MOUNTED SIGNS
870165	75 L.F.	805	FURNISH AND INSTALL 3" DIA. PVC ELEC. CONDUIT, SCHEDULE 80-SLOTTED.
800000	1 EA.		Furnish and install 15' steel pole with special 'T' 60' mast arm (per MD 818J3-01)



MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

MD 528 (COASTAL HWY.) NORTH
FROM 9TH ST. TO 26TH ST.

DRAWN BY: EM Milesky	F.A.P. NO. SEE TITLE SHEET	TS NO. 2312	SHEET NO. 60 OF 89
CHECKED BY: RR Zacherl	S.H.A. NO. WQ-7005184		
SCALE: NONE	COUNTY: WORCESTER	T.I.M.S. NO.	
DATE: 4/28/00	LOG MILE:		